

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**Applicants** 

: Nippa et al.

Serial No.

: 10/719,892

Filed

: November 21, 2003

Title

: EMBEDDED ELECTRODE INTEGRATED OPTICAL DEVICES AND

METHODS OF FABRICATION

Docket

: OPI 0004 PA/41004.11

Art Unit

: 2874

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-

450 on March 8, 20

Pag No. 30 56

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

## INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §§ 1.56, 1.97, AND 1.98

Applicants submit herewith patents, publications, and other information of which they are aware, which they believe may be material, as defined in 37 CFR §1.56(b), to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR §1.56(a). While the information referred to in this Information Disclosure Statement may be material pursuant to 37 CFR §1.56(b), the filing of this Information Disclosure Statement is not intended to, pursuant to 37 CFR §1.97(h), constitute an admission that any patent, publication, or other information referred to is, or is considered to be, material to the patentability of this invention. No representation is made that a reference is "prior art" within the meaning of 35 U.S.C. §§ 102 and 103, and Applicant(s) reserves the right, pursuant to 37 C.F.R. § 1.131 or otherwise, to establish otherwise. Further, pursuant to 37 CFR §1.97(g), the filing of this Statement should not be construed as a statement that a search has been made or that no other material information exists.

Serial No. 10/719,892

Docket No. OPI 0004 PA/41004.11

This Information Disclosure Statement is being filed within the period set forth in 37 CFR §1.97(b) because it is believed to be filed before the mailing date of a first office action on the merits.

The Office has waived the requirement pursuant to 37 CFR 1.98 (a)(2)(i) for submitting a copy of each cited U.S. patent and each U.S. patent application publication for all U.S. national patent applications filed after June 30, 2003 and for all international applications that have entered the national stage under 35 USC § 371 after June 30, 2003. Therefore, no copies of each cited U.S. patent and each cited U.S. patent application publication are enclosed, but the cited U.S. patents and the cited U.S. patent application publications are listed on PTO/SB/08A.

Respectfully submitted, DINSMORE & SHOHL LLP

By

James E. Beyer

Registration No. 39,564

One Dayton Centre
One South Main Street, Suite 500
Dayton, Ohio 45402-2023
Telephone: (937) 223-2050
Facsimile: (937) 223-0724

JEB/kec Encls.

PTO/SB/08A (08-03) Approved for use through 07/31/2006. OMB 0651-0031

Approved for use through 07/31/2006. OMB 0651-0031 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

TA TRACEME

Sheet

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known				
Application Number	10/719,892			
Filing Date	November 21, 2003			
First Named Inventor	David W. Nippa			
Art Unit	2874			
Examiner Name				
Attorney Docket Number	OPI 0004 PA/41004.11			

			U. S. PATEN	DOCUMENTS	
Examiner Initials*			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		<sup>US-</sup> 3,558,213	01/26/1971	Marcatili	
		<sup>US-</sup> 3,589,794	06/29/1971	Marcatili	
		<sup>US-</sup> 3,850,503	11/26/1974	Riseberg et al.	
		<sup>US-</sup> 4,070,094	01/24/1978	Martin	
		<sup>US-</sup> 4,730,171	03/08/1988	So et al.	
		<sup>US-</sup> 4,737,014	04/12/1988	Green	
		<sup>US-</sup> 4,884,858	12/05/1989	Ushikubo et al.	
		<sup>US-</sup> 4,896,930	01/30/1999	Tsuchitani et al.	
		<sup>US-</sup> 4,936,645	06/26/1990	Yoon et al.	
		US- 5,045,364	09/03/1991	Fang	
		<sup>US-</sup> 5,078.511	01/07/1992	Noli et al.	
		<sup>US-</sup> 5,138,687	08/11/1992	Horie et al.	
		<sup>US-</sup> 5,151,959	09/29/1992	Mueller et al.	
		<sup>US-</sup> 5,243,680	09/07/1993	Soane	
		<sup>US-</sup> 5,315,422	05/24/1994	Utaka et al.	
		<sup>US-</sup> 5,513,283	04/30/1996	Whang et al.	
		<sup>US-</sup> 5,533,151	07/02/1996	Leonard	
		<sup>US-</sup> 5,546,480	08/13/1996	Leonard	
		<sup>US-</sup> 5,581,642	12/03/1996	Deacon et al.	

	FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.1	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages			
		Country Code <sup>3</sup> *Number <sup>4</sup> *Kind Code <sup>5</sup> (if known)	MM-DD-YYYY		Or Relevant Figures Appear	T <sup>6</sup>		
		EP 0335672 A	10/04/1989	Nippon Electric Co.				
•		GB 2236402 A	04/03/1991	Marconi GFC Ltd.				
		EP 0513919 A	11/19/1992	Nederland PTT				
		JP 05 323243 (Abstract)	12/07/1993	Nippon				
		JP 09 090299 (Abstract)	04/04/1997	Nippon				
		EP 0898348 A	02/24/1999	Nippon Electric Co.				

Examiner	Date	
Signature	Considered	•

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique citation designation number (optional). See Kinds Codes of USPTO Patent Documents at <a href="https://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

OPI 0004 PA/41004.11

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number. Complete if Known Substitute for form 1449/PTO Application Number 10/719,892 Filing Date November 21, 2003 INFORMATION DISCLOSURE First Named Inventor David W. Nippa STATEMENT BY APPLICANT Art Unit 2874 (Use as many sheets as necessary) **Examiner Name** 

Sheet

Attorney Docket Number

	1 00			DOCUMENTS	
Examiner Initials*	Cite No. <sup>1</sup>	Document Number  Number-Kind Code <sup>2 (# known)</sup>	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		<sup>US-</sup> 5,659,010	08/19/1997	Sotoyama et al.	
		<sup>US-</sup> 5,703,710	12/30/1997	Brinkman et al.	
		<sup>US-</sup> 5,724,461	03/03/1998	Bruno et al.	
		US- 5,732,177	03/24/1998	Deacon et al.	
		<sup>US-</sup> 5,751,867	05/12/1998	Schaffner et al.	
		<sup>US-</sup> 5,818,983	10/06/1998	Yoshimura et al.	
·		US- 5,822,100	10/13/1998	Robinson et al.	
		<sup>US-</sup> 5,825,525	10/20/1998	Harwit	
		<sup>US-</sup> 5,835,644	11/10/1998	Oh et al.	
		<sup>US-</sup> 5,854,866	12/29/1998	Leonard	
		<sup>US-</sup> 5,857,039	01/05/1999	Bosc et al.	
		<sup>US-</sup> 5,862,276	01/19/1999	Karras	
		<sup>US-</sup> 5,887,089	03/23/1999	Deacon et al.	
		<sup>US-</sup> 5,894,532	04/13/1999	Moores	
		<sup>US-</sup> 5,970.186	10/19/1999	Kenney et al.	
		<sup>US-</sup> 6,022,671	02/08/2000	Binkley et al.	
		<sup>US-</sup> 6,028,973	02/22/2000	Schienle et al.	
		<sup>US-</sup> 6,046,839	04/04/2000	Ito et al.	
		<sup>US-</sup> 6,137,619	10/24/2000	Chen et al.	

		FOREIG	N PATENT DOCU	MENTS		
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages	
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	MM-DD-YYYY		Or Relevant Figures Appear	T <sup>6</sup>
	-	WO 03/010592 A2	02/06/2003	Battelle Memorial		
		WO 03/012532 A2	02/13/2003	Digilens, Inc.		
	-					-
					-	

Examiner	Date	****
Signature	Considered	
-		

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique citation designation number (optionat). See Kinds Codes of USPTO Patent Documents at <a href="https://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. \*Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. \*Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Subs	titute for form 1449/PTO		•	Complete if Known			
				Application Number	10/719,892		
IN	FORMATIO	וח א	SCLOSURE	Filing Date	November 21, 2003		
				First Named Inventor	David W. Nippa		
SI			APPLICANT	Art Unit	2874		
	(Use as many s	heets as	necessary)	Examiner Name			
Sheet	3	of	5	Attorney Docket Number	OPI 0004 PA/41004.11		

			U. S. PATENT	DOCUMENTS		
Examiner Initials*	Cite No. <sup>1</sup>	Document Number  Number-Kind Code <sup>2 (d known)</sup>	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
		<sup>US-</sup> 6,144,779	11/07/2000	Binkley et al.		
		US- 6,167,169	12/26/2000	Brinkman et al.	7	
		<sup>US-</sup> 6,195,479	02/27/2001	Pan		
_		<sup>US-</sup> 6,243,517	06/05/2001	Deacon		
		<sup>US-</sup> 6,320,990	11/20/2001	Sun		
		<sup>US-</sup> 6,361,717	03/26/2002	Dalton et al.		
		<sup>US-</sup> 2002/0094150 A1	07/18/2002	Lim et al.		
		<sup>US-</sup> 6,507,681	01/14/2003	Kowalczyk et al.		
		<sup>US-</sup> 6,558,585	05/06/2003	Zhang et al.		
		<sup>US-</sup> 6.643,419	11/04/2003	Chang et al.		
		us- 6,311,004	10/30/2001	Kenney et al.		
	-	US-				
	<b>-</b>	US-	-			
		US-				
		US-				
		US-				
		US-				
		US-				

	FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.1	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages			
	L	Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	MM-DD-YYYY		Or Relevant Figures Appear	T⁵		
						_		
						-		
						$\vdash$		
						$\vdash$		

Examiner	Date	
Signature	Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at <a href="https://www.uspto.gov">www.uspto.gov</a> or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				Complete if Known		
Odballar	C 101 101111 1443/1 10			Application Number	10/719,892	
INFO	ORMATION	DIS	CLOSURE	Filing Date	November 21, 2003	
STATEMENT BY APPLICANT			PPLICANT	First Named Inventor	David W. Nippa	
	(lice on many cha	ofo oo m	nengen ad	Art Unit	2874	
(Use as many sheets as necessary)				Examiner Name		
Sheet	4	of	5	Attorney Docket Number	OPI 0004 PA/41004.11	

Examiner	Cite	NON PATENT LITERATURE DOCUMENTS  Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of	
Initials*	No.1	the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		SCHILAKK, Modulation Behaviour of Integrated Optical Couplers, Journal of Optical Communications, 1984, 122-131	
		MARCATILI, Dielectric Rectangular Waveguide and Directional Coupler for Integrated Optics, Bell Syst. tech. J., Vol 48, pp. 22-111, September 1969	
	:	THEMISTOS et al., Design Considerations for an Electrooptic Directional Coupler Modulator, Journal of Lightwave Technology, Vol. 17, No. 4, April 1999	
		KAPLAN et al., Layout For Polarization Insensitive Modulation In LiNbO3 Waveguides; IEEE Journal of Selected Topics In Quantum Electronics; 01/2000; pgs. 83-87; Vol 6 No. 1; IEEE; Israel	
		DUTHIE et al., A Polarization Independent Guided-Wave LiNbO3 Electrooptic Switch Employing Polarization Diversity; IEEE Photonics Technology Letters, pp. 136-137, Vol. 3, No. 2; February 1991	
		SAIDA et al., Planer Lightwave Circuit Polarization-Mode Dispersion Compensator; IEEE Photonics Technology Letters, pp. 507-509; Vol. 14, No. 4; April 2002	
		LIAO et al.; Design and Fabrication of Wide-Angle TE-TM Mode Splitter in Lithium Niobate; IEEE Journal of Selected Topics in Quantum Electronics; pp. 88-93; Vol. 6, No. 1.; January/February 2000	
		HU et al.; Tunable Mach-Zehnder Polarization Splitter Using Height-Tapered Y-Brances; 1997; pp. 773-775	
		Interferometric-Type Polarisation Splitter On Z-Propagating LiNbO3; Ti; Electronics Letters; 1990	
		OH HYUN-HO et al.; Polarization-Independent Phase Modulator Using Electro-optic Polymer; Electronics Letters, IEE Stevenage, GB, Vol. 36, No. 11; 25 May 2000; pp. 969-970	

Examiner	Date	
Signature	Considered	·

<sup>\*</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

considered. Include copy or this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:

Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

PTO/SB/08B (08-03)

Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO				Complete if Known		
Cabbatat				Application Number	10/719,892	
INFO	PRMATION	DIS	CLOSURE	Filing Date	November 21, 2003	
STATEMENT BY APPLICANT				First Named Inventor	David W. Nippa	
	(Hoo oo many cha	ofe oe n	acassan)	Art Unit	2874	
(Use as many sheets as necessary)				Examiner Name		
Sheet	5	of	5	Attorney Docket Number	OPI 0004 PA/41004.11	

Examiner	Cite	NON PATENT LITERATURE DOCUMENTS  Include name of the author (in CARITAL LETTERS), title of the article (when appropriate), title of	
Examiner Initials*	No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		YOSHITO SHUTO et al.; Optical Intensity Modulators Using Diazo-Dye Substituted Polymer Channel Waveguides; IEEE Journal of Quantum Electronics, IEEE Inc., Vol. 31, No. 8, 1 August 1995, pps. 1451-1460	
		MUTO S. et al.; Slab Waveguide-Type Optical Modulators Using Optically Active and Nonlinear Polymers; Molecular Crystals and Liquid Crystals Science and Technology Section B; Nonlinear Optics; Vol. 22, No. 1-4, 1999, pps. 449-452	
		PARKER et al.; Multiple-Order PMD Compensation Using a Single Activity Chirped AWG; Proceedings 27th European Conference on Optical Communication; Amsterdam; Netherlands; 30 September - 4 October 2001; Vol. 3, 30 September 2001; pps. 424-425	
		HOROWITZ et al.; Towards Better Control of Sol-Gel Film Processing For Optical Device Applications; Journal of Nonlinear Optical Physics and Materials; 1997; Vol. 6, No. 1; pps. 1-18; World Scienctific Publishing Company	
<del></del> _			

Examiner	Date	
Signature	Considered	

<sup>\*</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.